

## Scholars Connect program welcomes class of 2013-2014

By Eddy Ball

With its latest group of Scholars Connect student interns, NIEHS tried something a little different this year — a hands-on laboratory basics boot camp June 3-5, to give participants momentum as they begin their year of training and mentorship in Institute labs.

Unlike a military boot camp, the [NIEHS Scholars Connect Program](#) (NSCP) Science Training Workshop relied on positive reinforcement and personalized instruction. The workshop featured a two-hour small group review of the principles of molecular biology and one-hour review of scientific methods and units, followed by two full days of one-on-one instruction on laboratory applications of scientific method, with the very tools and procedures bench scientists use every day in their experiments.

The workshop was developed by Huei-Chen Lao, a biologist on detail as science education and outreach coordinator in the NIEHS [Office of Science Education and Diversity \(OSD\)](#), and conducted by eight volunteers. NIEHS staff scientist [Elena Braithwaite, Ph.D.](#), of the Comparative Genomics Group, and seven postdoctoral fellows, made up the instructional team.

Representing a range of research interests, the fellows included [Aleksandra Adomas, Ph.D.](#), of the Eukaryotic Transcriptional Regulation Group; [Miranda Bernhardt, Ph.D.](#), of the Reproductive Medicine Group; [Qing Cheng, Ph.D.](#), of the Ion Channel Physiology Group; [Jackson Hoffman, Ph.D.](#), of the Chromatin and Gene Expression Group; [Sabrina Robertson, Ph.D.](#), of the Developmental Neurobiology Group; [Misty Thomas, Ph.D.](#), of the Macromolecular Structure Group; and [Wipawee \(Joy\) Winuthayanon, Ph.D.](#), of the Receptor Biology Group.

As Lao explained, “The lab component of the workshop covered reagent preparation, constructing a standard curve, and using the standard curve to determine the protein concentration of the unknown samples; restriction enzyme digestion of DNA; and gel electrophoresis to separate DNA and protein molecules.” Lao said, she hopes the training gave the six undergraduates, participating this year from universities in the Raleigh/Durham, N.C., area, a head start when they entered their labs.

### Part of the NIEHS mission — to increase diversity in the biomedical workforce

Now in its second year, [NSCP](#) is aimed at increasing diversity in the environmental health sciences. According to OSD Director Ericka Reid, Ph.D., the program is designed to enhance scientific training for highly motivated science, technology, engineering, and math (STEM) undergraduate students from surrounding Historically Black Colleges and Universities, and other nearby academic institutions with underrepresented minority student populations.

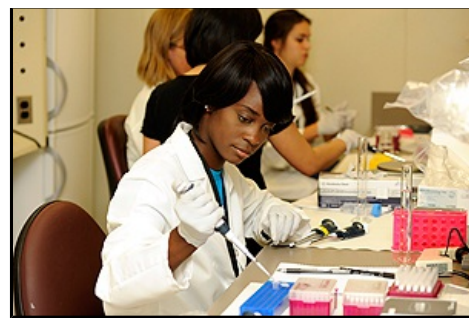
Intern Cathy Jamison is assisting with NSCP and will work closely with the scholars, who will train in NIEHS research groups full time this summer and part time during the fall and spring semesters. Participants, this year, are rising juniors and seniors in STEM programs at Saint Augustine’s University (SAU), North Carolina Central University (NCCU), North Carolina State University (NCSU), and the University of North Carolina (UNC) at Chapel Hill.

### The 2013-2014 scholars

- **Kate Blatchford**, who studies nutrition science at NCSU, is a part of the NTP Molecular Pathogenesis Group headed by [Darlene Dixon, D.V.M., Ph.D.](#)
- **Mia Burks**, who is a public health major at SAU with a minor in biology, is working with [Clarice Weinberg, Ph.D.](#), chief of the Biostatistics Branch.
- **Brittany Dunigan**, who studies biology at SAU, is the newest member of the DNA Repair and Nucleic Acid Enzymology Group headed by [Samuel Wilson, M.D.](#)
- **Ashley Kang**, who studies polymer and color chemistry and medical sciences at NCSU, works with [Xiaoling Li, Ph.D.](#), head of the Metabolism, Genes, and Environment Group.
- **Melissa Kerr**, a chemistry student at NCCU, is part of the Matrix Biology Group, headed by [Stavros Garantziotis, M.D.](#)
- **Toyosi Oyelowo**, who studies environmental health science at UNC, works with the NTP Neurotoxicology Group led by [Jean Harry, Ph.D.](#)

Participants will devote 40 hours per week to training this summer, and may participate in NIH Summer Internship Program activities, including a poster presentation at the end of the summer program. During the 2013-2014 academic year, the scholars will spend up to 20 hours on research-related activities, each week, as paid interns, while they continue their academic programs at their home institutions. Research-related activities include laboratory work mentored by lead researchers, scientists, and postdoctoral fellows, along with literature reviews, participation in lab meetings, and attendance at research workshops and seminars.

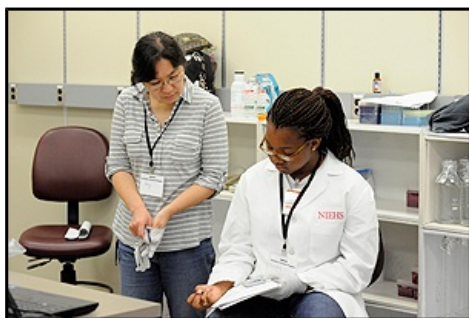
The program requires interns to participate in weekly NSCP professional development seminars, where they engage in dynamic dialogues with NIEHS scientists on environmental health research topics. The seminars also aim to further the scholars' scientific development, through research-relevant software training, in preparation for presenting findings from their own scientific research at the NSCP spring symposium. The symposium represents the culmination of three semesters, or connections, of defining a research project, constructing an appropriate hypothesis, and conducting experiments to test that hypothesis.



*Oyelowo practiced careful release of liquid in her pipette. "Draw the liquid in very slowly," instructor Winuthayanon told the interns, "so you don't contaminate the pipette." (Photo courtesy of Steve McCaw)*



*Instructor Adomas reviewed the basics of the metric system, with special emphasis on the measurements most frequently used in laboratory experiments. "This is something that will become second nature for you," she said. (Photo courtesy of Steve McCaw)*



*With a student-teacher ratio of almost one to one, the scholars received as much personal attention as they needed. Cheng, left, helped Dunigan as she worked with the conversion-volume formula. (Photo courtesy of Steve McCaw)*



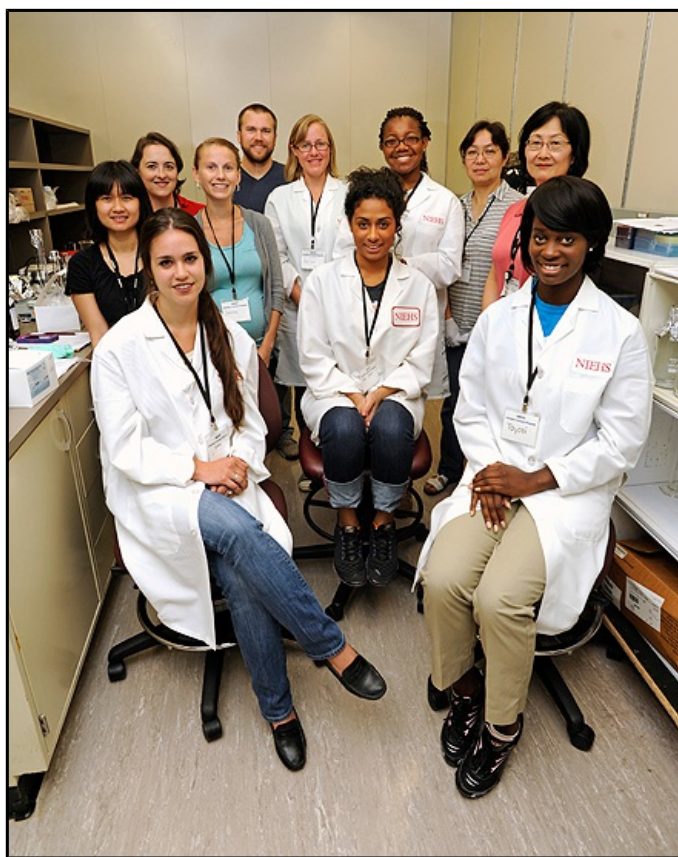
*On their final day of training, the scholars completed a post-workshop assessment and enjoyed a visit from NIEHS and NTP Director Linda Birnbaum, Ph.D., standing left, and Reid. (Photo courtesy of Steve McCaw)*



*Lao, right, wrapped up the training with a group discussion of the connections between best laboratory practices and the scientific method. (Photo courtesy of Steve McCaw)*



*Burks, left, and Kang listened, as fellow students responded to Lao's questions. (Photo courtesy of Steve McCaw)*



*NSCP participants, shown in lab coats, joined their instructors during a break in the lab training. Seated on the first row are Blatchford, Burks, and Oyelowo. Standing, left to right, are Winuthayanon, Adomas, Robertson, Hoffman, Kerr, Dunigan, Cheng, and Lao. Not shown: Braithwaite, Bernhardt, Kang, and Thomas. (Photo courtesy of Steve McCaw)*

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